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(71) Applicants

James Lamb

9 Perth Close, Melling Mount, Kirby, L33 1EJ,
United Kingdom

David Smith

110 Brookhurst Road, Bronmbrorough, Wirral,
Merseyside, United Kingdom

(72) Inventors

James Lamb

David Smith

(74) Agent and/or Address for Service

Royston

Tower Building, Water Street, Liverpool, L3 1BA,
United Kingdom

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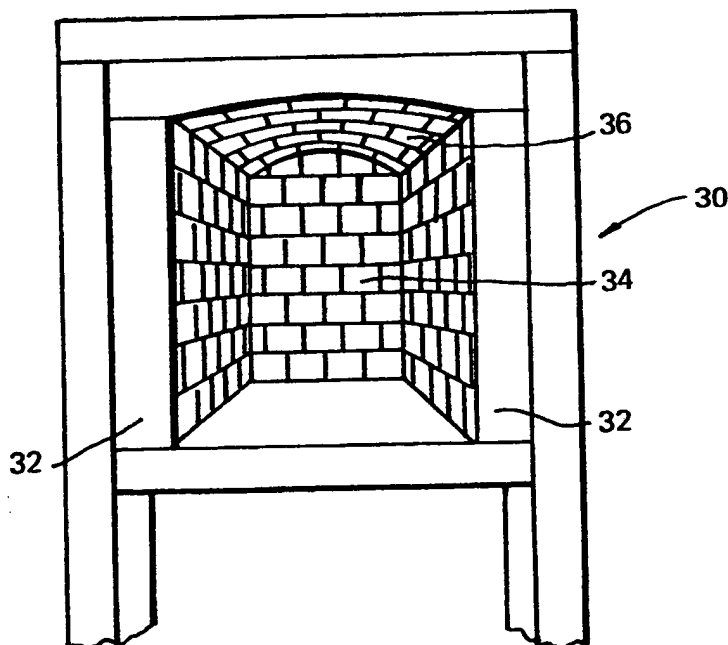
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(54) Moulded ceramic fibre products; Kiln linings

(57) A lining for a kiln 30 is produced from moulded components 32, 34, 36 of ceramic fibre having a stone or brickwork impression on one face. The ceramic fibre may include a dye to give a base colour representative of mortar and individual bricks may be coloured with heat resistant dye.

The moulded components may be produced by slip casting using a mould having a base carrying the mould impression, or by forming a sheet or slab of ceramic fibre and pressing or machining it to produce the stone or brick effect.



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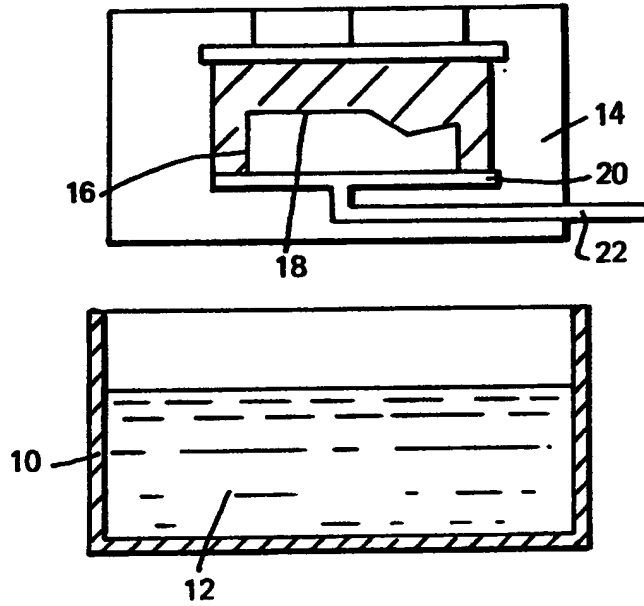


FIG. 1

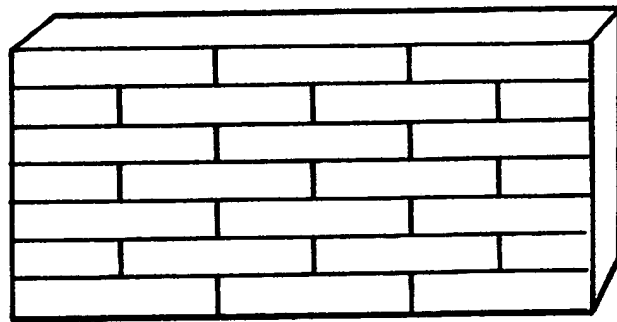


FIG. 2

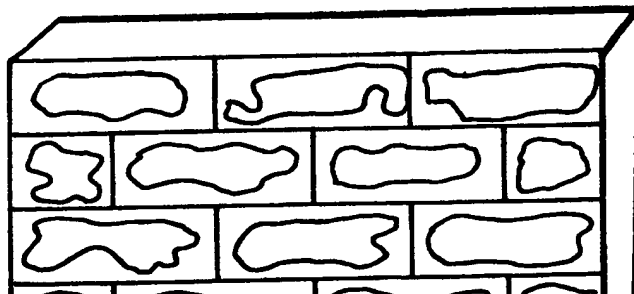
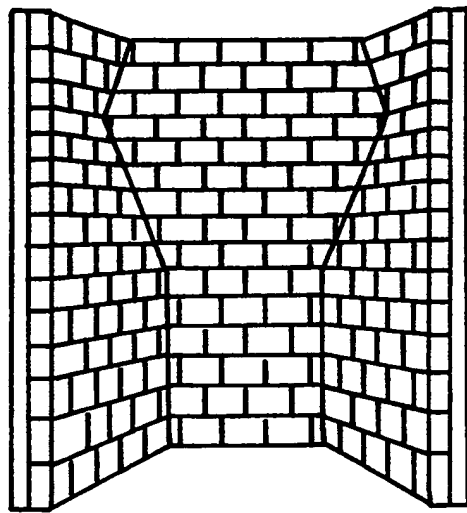


FIG. 3

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ONE-PIECE

FIG. 4

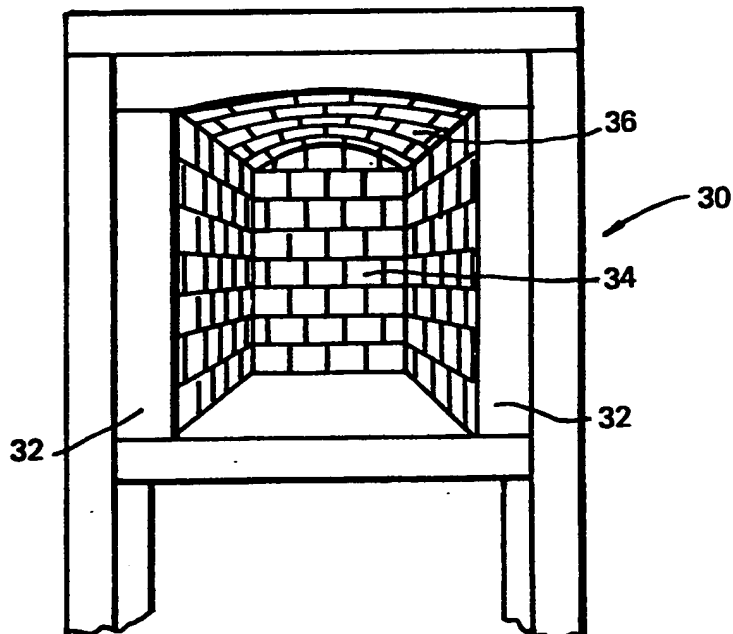


FIG. 5

Title: Moulded Components

DESCRIPTION

This invention concerns moulded components and, in particular, concerns moulded components for use in making devices requiring heat resistance.

In producing kilns and firebacks it is known to use ceramic fibre board but that usually has a plain, unattractive appearance. Whilst the use of ceramic fibre board may be economical, the traditional brick or stone kiln linings and firebacks are still desirable from the point of view of appearance.

An object of this invention is to use ceramic fibre board to produce a traditional appearance for kiln linings, firebacks and other heat resistant components.

According to the invention ceramic fibre is moulded to produce brick or stone effect components.

Preferably moulding of ceramic fibre is achieved by dipping a mould into an aqueous slurry of ceramic fibre, preferably also containing silica, starch and optionally a dye, withdrawing the mould, removing water, and separating the mould from the moulded

ceramic fibre and allowing the ceramic fibre to set possibly in a heated oven. The preferred mould is formed as a container with its base carrying the mould impression. The mould impression is permeable so that suction may be applied to remove water from the ceramic fibre mixture and to cause it to take the shape of the mould impression.

To construct a kiln lining, a mould impression for producing flat sheets having a brickwork or stonework appearance may be used, the kiln lining then being formed by said sheets retained in a suitable framework. One of said kiln lining sheets may alternatively be formed with an arcuate or slightly concave brick/stone surface for the roof of the kiln.

Other ceramic fibre components such as fire backs may be formed in one piece, if possible, but obviously the complexity or otherwise of a component and ease of separation thereof from its mould will be important factors in that regard.

To give authentic colour to a component formed according to the invention, the basic ceramic fibre slurry may include a dye, which is preferably heat resistant, to give a base colour, such as of mortar, and individual bricks or stone are then coloured using a heat resisitant dye. Such colouring may be

achieved by a suitable means, but sponge application or similar of dye is preferred so as to reduce the risk of dye getting onto "mortar" lines.

5 As an alternative to vacuum forming of ceramic fibre components, it may be possible to obtain desired shapes by further processing of sheets or slabs of ceramic fibre board such as by pressing or machining thereof to create a desired brick or stonework surface effect.

10 A preferred ceramic fibre for use in the invention is a blown alumino-silicate fibre made from blends of alumina and silica, such as sold under the trade name Triton Kaowool by Morganite Ceramic Fibres Limited.

15 Ceramic fibres components according to the invention may be used in many situations where fire proofing or heat resistant is important as well as visual appearance. Thus, internal walls for gas or electric fires, firebacks, kilns and ovens may be
20 produced as or from components according to the invention.

This invention will now be further described, by way of example only, with reference to the accompanying drawings, in which:-

25 Figure 1 shows schematically moulding apparatus

for ceramic fibre;

Figure 2 shows a brick effect ceramic fibre board;

5 Figure 3 shows a store effect ceramic fibre board;

Figure 4 shows a ceramic fibre firebacks; and

Figure 5 shows a kiln lined with ceramic fibre components.

Referring to Figure 1 of the accompanying
10 drawings, apparatus for moulding ceramic fibre
comprises a tank 10 for an aqueous slurry 12 of ceramic
fibre, (alumino-silicate fibre) starch, silica and,
optionially, dye and a rig 14 which is immersed in the
slurry 12 for moulding purposes. The rig carries a box
15 like mould 16 having its base 18 shaped as the
impression to produce a desired moulded effect such as
of brick or stonework, and in this case of a brick made
fireback. The mould base 18 at least is permeable by
means of perforations and has on its underside a box 20
20 connected via a pipe 22 to a vacuum pump.

In operation, the mould is immersed in the slurry
and then removed. Suction is then applied to draw off
water from the slurry so that the ceramic fibre can
set. The moulded component is separated from the mould
25 and then dried in a heated oven.

Examples of components made from ceramic fibre are shown in Figure 2, 3 and 4. Figure 2 shows a brickwork board, Figure 3 shows a stonework board and Figure 4 shows a one piece brick effect fireback. In each case the moulded component may be coloured with heat resistant dye to give an authentic appearance.

In Figure 5 a kiln 30 is shown lined with ceramic fibre brick effect boards 32 for the sides, 34 for the back and 36 for the roof of the kiln.

CLAIMS

1. A component having a brick or stone effect on at least one surface and moulded from ceramic fibre.
2. A component as claimed in claim 1, wherein the
5 ceramic fibre includes a dye to give a base colour to depict mortar lines and individual bricks or stones are coloured using a heat resistant dye.
3. A component as claimed in claim 1 or 2 made from blown alumino-silicate fibre.
- 10 4. A kiln lining made from components as claimed in claim 1, 2 or 3.
5. A kiln lining as claimed in claim 4, wherein the components are formed as flat sheets having a brickwork or stonework appearance on one face.
- 15 6. A kiln lining as claimed in claim 5, wherein one of said sheets is formed with an arcuate brick/stone surface for a kiln roof.
7. A fireback made as a component as claimed in claim 1, 2 or 3.
- 20 8. A method making a component as claimed in claim 1, 2 or 3 comprising the steps of dipping a mould for the component into an aqueous slurry of ceramic fibre, withdrawing the mould, removing water and separating the mould from the moulded ceramic fibre and allowing
25 the ceramic fibre to set.

9. A method as claimed in claim 8, wherein the ceramic fibre slurry also contains silica and starch.

10. A method as claimed in claim 8 or 9, wherein the ceramic fibre slurry also contains a dye.

11. A method as claimed in claim 8, 9 or 10 wherein, the ceramic fibre is allowed to set in a heated oven.

5 12. A method as claimed in any one of claims 8 to 11, wherein individual bricks or stones are coloured with a heat resistant dye.

13. A method of making a component as claimed in claim 1, 2 or 3 comprising the steps of forming a sheet
10 or slab of ceramic fibre and pressing same to obtain a desired pattern thereon.

14. A method of making a component as claimed in claim 1, 2 or 3 comprising the steps of forming a sheet or slab of ceramic fibre and machining same to produce a
15 desired pattern thereon.

15. A component of ceramic fibre substantially as hereinbefore described with reference to and as illustrated in any one of Figures 2, 3, 4, or 5 of the accompanying drawings.

20 16. A method of producing a component of ceramic fibre substantially as hereinbefore described with reference to the accompanying drawings